

ABSTRACT

A bioactive sol-gel solution includes a biocompatible polymer, a gelable inorganic base material, and at least one calcium and phosphorous molecular species. The base material can be an alkoxide, such as TEOS. The polymer acts as a viscosity modifier to the sol or gel, increases the viscosity range over which fibers can be sprayed or spun, and broadens the time period over which fibers can be sprayed or spun. A bioactive glass composite can be formed from the bioactive sol-gel solution, including a fibrous form. Fibers can serve as a scaffold for cell growth and in the repair of hard or soft tissue defects.